



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/798,855	03/12/2004	Hisashi Amaya	12054-0024	6672
22902	7590	08/08/2005	EXAMINER	
CLARK & BRODY 1090 VERMONT AVENUE, NW SUITE 250 WASHINGTON, DC 20005			YEE, DEBORAH	
			ART UNIT	PAPER NUMBER
			1742	

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/798,855

Applicant(s)

AMAYA ET AL.

Examiner

Deborah Yee

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3-12-04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

See

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 to 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Martin (US Patent 6,576,186).

3. Claims 1 to 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung (US Patent 6,793,744).

4. Martin on lines 50 to 66 of column 1 and lines 1 to 16 in column 2, and Jung on lines 5 to 46 of column 2, each disclose a martensitic stainless steel alloy having a composition with constituents whose wt% ranges overlap those recited by the claims; such overlap establishes a prima facie case of obviousness because it would have been obvious to one of ordinary skill in the art to select the claimed alloy ranges from the broader disclosure of the prior art because the prior art has similar properties of high hardness and corrosion resistance, see MPEP 2144.05.

5. Moreover, prior art discloses specific examples that closely meet the claimed composition and hardness values. See Jung, examples in Tables 1 and 2 of columns 4 to 6; and Martin, examples in Tables I,III,IV,VII and XIA of columns 4 to 10.

6. Even though prior art does not teach the amount of carbides in grain boundaries of the prior austenite at not more than 0.5 vol.% as recited by the claims, such would be

Art Unit: 1742

expected since composition and hardness values are closely met, and in absence of proof to the contrary. Moreover, the limitation "the amount of carbides in grain boundaries of the prior austenite is not more than 0.5vol%"

would not be a patentable distinction since it is an intermediate property to process the final product.

7. Claims 5 to 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jung or Martin as applied to claims 1 to 4 above, and further in view of Miyakusu et al (US Patent 5,624,504).

8. Jung or Martin discloses a martensitic stainless steel which closely meets the composition for the reasons set in paragraph nos. 4 to 6 but fails to include small amounts of Ca, REM, B and/or Mg. It is, however, well known in the metallurgical art that these elements are common additives for martensitic stainless steel to further enhance properties (hot workability and oxidation resistance) as evident by Miyakusu on lines 62-67 of column 5 and lines 35 to 41 of column 6. Since hot workability and oxidation resistance are desired and sought by Jung and Martin, then it would be an obvious modification well within the artisan to incorporate small amounts of these elements to prior art steel alloy to produce no more than the known and expected effect of such additions.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 1 to 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese patent 2-243740 cited by applicant in IDS dated 3-12-04.

11. JP'740 discloses specific martensitic stainless steel examples D and M in Table 1 on page 347 which meet the claimed composition. Even though prior art does not teach a hardness of 30 to 45HRC and the amount of carbides in grain boundaries of the prior austenite at not more than 0.5 volume% as recited by the claims, such would be expected since composition and process limitations are closely met and in absence of proof to the contrary. See JP'740 in Table 3 on page 349 wherein steel examples D and M are processed by hot rolling at austenitizing temperature followed by air cooling which is similar to method of the present invention as shown on pages 18 and 19 of applicant's specification.

12. Claims 5 to 8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Japanese patent 2-243740.

13. JP'740 examples D and M in Table 1 on page 347 meet the claimed composition but fail to include Ca, Mg or REM. These elements, however, would be obvious to

Art Unit: 1742

incorporate since they are taught as optional alloying constituents by JP'740 on lines 4 to 6 in column 2 on page 341.

14. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 6100935.

15. JP'935 on page 210 discloses martensitic stainless steel examples 1 and 4 which meet the claimed composition. Even though prior art does not teach a hardness of 30 to 45HRC and the amount of carbides in grain boundaries of the prior austenite at not more than 0.5 volume% as recited by the claims, such would be expected since composition and process limitations are closely met and in absence of proof to the contrary. See the English abstract of JP'935 discloses hot working, air cooling, heating at $A_{c3} + 10^{\circ}\text{C}$ to A_{c3} point + 200°C to a cool stop temperature of 550 to 350°C at 2 C/sec or more, air cooling to room temperature followed by tempering at A_{c1} point or less, which includes temperatures less than 250°C.

16. Claims 4 to 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese patent 6100935 as applied to claims 1 and 2 above, and further in view of Japanese patent 2-243740.

17. JP'935 meet the claimed composition but fails to include small amounts of Ti, V, and/or Nb and Ca, Mg, REM. . It is, however, well known in the metallurgical art that these elements are common additives for martensitic stainless steel to further enhance properties (hot workability and oxidation resistance) as evident by JP'740 on pages 343 and 344. Since hot workability and oxidation resistance are desired and sought by JP'935, then it would be an obvious modification well within the artisan to incorporate small


amounts of these elements to steel alloy to produce no more than the known and expected effect of such additions.

18. The unapplied references have been cited to further depict the state of the art in martensitic stainless steels.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on Monday-Friday from 6:00 to 2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Deborah Yee
Primary Examiner
Art Unit 1742

dy